

REMARKS

This application is amended in a manner to place it in condition for allowance at the time of the next Official Action.

Status of the Claims

Overall, claims 1 and 8-12 have been amended as to form to clarify that the reducing of the diene content does indeed occur in advance of the desulfurizing step, as it appears that this order was not given patentable weight. This is supported by paragraphs 10 and 11 of the originally filed application.

The features of claim 15 have been added to claim 12.

Claim 15 is cancelled.

Claims 1, 3, 4, 6, 8-14 and 16 remain in this application.

Claim Rejections-35 USC §103

Claims 1,3, 4, 6 and 8-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over SAITOU et al. US 20030213728 ("SAITOU") and in view of MATSUMOTO et al. US 20030023120 ("MATSUMOTO"). This rejection is respectfully traversed for the reasons that follow below.

The claimed method according to independent claim 1 requires reducing the diene content of a cracked naphtha fraction to obtain a diene value of 0.3 g/100 g and desulfurizing of this diene-reduced cracked naphtha fraction.

It appears that the Official Action refers to these features in two locations.

The first location is at page 3:

"A diene-reducing step of reducing the diene content of the raw cracked naphtha fraction by causing the cracked naphtha fraction to come into contact with a diene-reducing catalyst in advance (para 64)" Emphasis added.

The Official Action offers no explanation, but paragraph 64 clearly fails to disclose or suggest:

- (1) reducing the diene content of a cracked naphtha fraction to obtain a diene value of 0.3 g/100 g,
and
- (2) desulfurizing this diene-reduced cracked naphtha fraction.

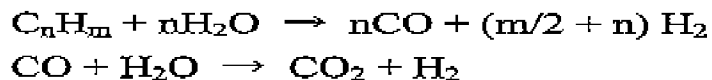
The second location is on page 8, where the Official Action appears to repeat the previously held position at the top of page 8:

"SAITOU teaches in paragraph 70-73, 64 and 68-69, reforming a fuel and obtaining products of mainly hydrogen by treating with a catalyst such as nickel or copper. Although SAITOU does not specifically teach hydro-refining and a diene-reducing catalyst, this reference does in fact teach reforming a fuel with in the presence of a catalyst such as nickel or copper (see arguments above) and it is the examiners position that the reforming a fuel is equivalent to hydro-refining and the catalyst is equivalent to a diene-reducing catalyst; and burden is upon applicants to show evidence otherwise."

However, Applicant understood that this previously presented position was based on the Examiner taking "Official Notice" that "the reforming a fuel is equivalent to hydro-refining and the catalyst is equivalent to a diene-reducing catalyst".

Pursuant to MPEP 2144.03, C, Applicant specifically pointed out the errors of this position. However, Applicant has received no acknowledgement of the arguments.

As stated previously the paragraphs of SAITOU, from which the Examiner takes the Official Notice, are limited to reactions wherein hydrogen is produced from naphtha under the presence of steam. Fuel reformed in this manner is completely different from the hydrogen-reforming in the field of the art which includes addition of hydrogen, hydrosulfurization, isomerization, cyclization, etc. That is, the SAITOU discloses the following:



Moreover, the Official Action fails to show how this disclosure of "reforming a fuel" suggests:

- (1) reducing the diene content of a cracked naphtha fraction to obtain a diene value of 0.3 g/100 g,
and
- (2) desulfurizing this diene-reduced cracked naphtha fraction.

MATSUMOTO, as noted in the previously filed amendment, fails to teach reducing the diene of a cracked naphtha fraction to obtain a diene value of 0.3 g/100 g and desulfurizing this diene-reduced cracked naphtha fraction.

Therefore, as the Official Action fails to show any finding of fact for the required method steps, the method claims are not rendered obvious by SAITOU in view of MATSUMOTO. Withdrawal of the rejection is respectfully requested.

Claims 12-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over SAITOU in view of MATSUMOTO, in view of COKER et al. US 6,913,688 ("COKER") and as evidenced by FLETCHER et al. ("FLETCHER"). This rejection is respectfully traversed for the reasons that follow.

Independent claim 12 is directed to an unleaded gasoline composition having a research octane number of 89.0 or more, a 50 vol% distillation temperature of 105°C or less, an olefin content of 10 vol% or more, a total sulfur content of 1 mass ppm or less, and a proportion of thiophene and 2-methylthiophene compounds to the total sulfur compounds of 50 mass% or more, as sulfur.

SAITOU teaches a fuel having a research octane number of 89.0 or more, a 50 vol% distillation temperature of 60°C or higher and 120°C or lower, an olefin content of 35 vol% or less, and sulfur content of 50 mass ppm or less.

SAITOU fails to teach the proportion of thiophene and 2-methylthiophene compounds to the total sulfur compounds of 50 mass% or more, as sulfur.

MATSUMOTO also fails to suggest such a proportion.

FLETCHER teaches an olefinic sulfur-containing compound having a sulfur content of at least 50 ppm (see claims 1 and 17), and discloses "thiophene and other cyclic sulfur compounds" in column 4, lines 62-64. However, FLETCHER does not suggest that the proportion of thiophene and 2-methylthiophene compounds to the sulfur compounds of 50% or more or the amount of sulfur.

COKER teaches a process for hydrodesulfurizing olefinic naphtha feedstreams and retaining a substantial amount of the olefins, wherein the feedstreams contain at least about 5 wt. % olefins. A product stream contains at least 5.0 wt. ppm sulfur. However, COKER does not teach that the olefins in the product have a sulfur content of 1 mass ppm or less.

Therefore, the combination of SAITOU, MATSUMOTO with or without COKER and FLETCHER fails to render obvious claims 12-14 and 16, and withdrawal of the rejection is respectfully requested.

Conclusion

In view of the amendment to the claims and the foregoing remarks, this application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our credit card which is being paid online simultaneously herewith for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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